
ASI Computer Division-EMR, announces the first in the ADVANCE 6100 Computer Series



the paper tiger with teeth...

The new 6130 computer system from the ASI Computer Division of Electro-Mechanical Research, Inc. is not available for immediate delivery. Some will call it a "paper tiger." This computer, however, is a formidable one, fully equipped for data acquisition systems and other industrial applications. It's designed to out-perform all competitive machines in the low-cost area.

Check some of the features of the ADVANCE 6130 and you'll see it's worth waiting for—

- 16-bit data word plus parity and memory protect bits.
- 0.9 microsecond memory cycle time.
- Monolithic integrated circuitry.
- Multiple bus system of organization which allows parallel communication and control between central processors, I/O channels, peripheral units, and/or various memory modules.
- Low price, \$34,000.

For more information, contact any of our sales offices or our Marketing Department in Minneapolis directly.

ASI COMPUTER DIVISION 

8001 Bloomington Freeway, Minneapolis, Minn. 55420



NEWS RELEASE

ADVANCE 6130 DATA ACQUISITION AND INDUSTRIAL COMPUTER SYSTEM

NEW COMPUTER FOR DATA ACQUISITION AND INDUSTRIAL APPLICATIONS FROM EMR

MINNEAPOLIS, MINNESOTA--April 20, 1966--The ASI Computer Division, Electro-Mechanical Research, Inc. announces a new digital computer system specifically intended for integrated data acquisition system and industrial applications. The computer system, designated the ADVANCE 6130, will be a total monolithic integrated circuit machine incorporating a 16-bit data word. The ADVANCE 6130 processor is expected to sell for approximately \$34,000.

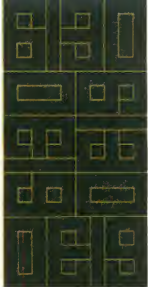
One of the most significant features of this system is its bus organization, providing for simultaneous communication and control of multiple central processors, multiple I/O channels, and multiple memory modules. The 6130 is the only small scale computer to have this third generation systems organization.

Together with the new system, the ASI Computer Division will provide a comprehensive software system including batch processing operating system, extended assembler, FORTRAN, and a real-time executive.

The ASI Computer Division formerly was named Advanced Scientific Instruments.

--ADVANCE 6130 Fact Sheet--

1. The ADVANCE 6130 computer is the first of a new 16-bit data word series, the ADVANCE 6100 series, to be introduced by the ASI Computer Division, Electro-Mechanical Research, Inc., 8001 Bloomington Freeway, Minneapolis, Minnesota.
2. The system incorporates total monolithic integrated circuitry to provide high-speed, reliable operation.
3. The system is intended for integrated data acquisition systems and industrial applications. System features permit complete systems redundancy assuring high reliability to be effected at a low cost.
4. The ADVANCE 6130 has an exceptionally large repertoire for a 16-bit data word machine -- over 100 instructions. This is accomplished with single- and double-word instruction formats for programming versatility.
5. The system multiple bus organization provides for parallel communications and control between several central processors, completely buffered I/O channels, and various memory modules.
6. Multilevel priority interrupt is a standard feature of the ADVANCE 6130.
7. Memory modules of various sizes and speeds are available. The standard memory has a cycle time of 0.9 microseconds.
8. Memory protect features are included in the standard ADVANCE 6130.
9. Up to six fully buffered I/O channels, including word/byte channels and multiplex channels, are available.



EXECUTIVE REPORT

ADVANCE 6130 DATA ACQUISITION AND INDUSTRIAL COMPUTER SYSTEM

In advising you of our new equipment, I should also like to take this opportunity to give you some additional information on the ASI Computer Division and some recent changes which have been innovated.

We believe that 1966 will be our banner year - the year we establish ourselves as a major factor in the computer business. Growth forecasts are frequently just degrees of wishful thinking. However, here at ASI we have recently increased our facilities to ready them for the growth we expect this year. We are making great progress in a number of markets and are expanding our foreign operations.

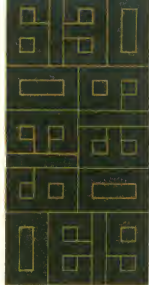
Being small, our company must offer more value than the giants in the business, and we do. We don't seek to be everything to everyone, but we are looking for customers with specialized needs who want the most performance for their money. In the ADVANCE Series, we have hardware of greater productivity than anyone else can offer at that price, so we are interested in finding customers who really know computers well enough to be selective in their choice.

With this in mind, the ASI Computer Division is now introducing the new ADVANCE 6130 computer. This 16-bit data word machine is specifically designed for data acquisition systems and other industrial applications. The features outlined in this folder indicate the advantages that the ADVANCE 6130 holds for customers - low-cost, speed, reliability, flexibility, and, as mentioned before, greater productivity than anyone else can offer.

There are other factors that may influence your choice in selecting a computer, for example, the company itself. The ASI Computer Division has recently changed its name from Advanced Scientific Instruments. This was a part of an overall move on the part of our parent corporation, Electro-Mechanical Research, Inc. to better identify all of its multi-division efforts. EMR, as a wholly owned subsidiary of Schlumberger, a company called by Datamation, a "financial Goliath", gives to ASI the financial stability that may have been lacking a number of years ago. Marketing activity has greatly increased at ASI in the past year. Likewise, employment has increased and there has been an increase in facilities.

Our greatest strength is still in our people whom I will match against any in the business. We have truly an exceptional group of men who were attracted to ASI because it gives them a chance to exercise their own initiative without outdated conformity. The fact that we are small permits us to capitalize our personal strengths better than any large company. As a result, we can do a better job for all of our customers than any other company in the business. We invite all of you to contact us directly to see how this combination of factors can aid in your computer activities.

John Paivinen
General Manager



PRELIMINARY PRICING LIST

ADVANCE 6130 DATA ACQUISITION AND INDUSTRIAL COMPUTER SYSTEM

ADVANCE 6130 Computer System prices are:

Basic System:	Includes Central Processor, Programmed I/O Channel 4,096 words, 16 bit plus parity and protect bit, 900 nanosecond memory, end mount operators console and interface for one typewriter	\$ 34,000
	With 8,192 word 900 nanosecond memory	\$ 42,000

Typewriter:

Model 33	\$ 590
Model 33 with 10 cps paper tape read/punch	\$ 830
Model 35	\$ 1,930

Any of the following options or combinations require initial provision of one Systems Cabinet with power:	\$ 4,000
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Input/Output Channels:

Word/Byte Channel	\$ 4,200
Multiplexer Channel	\$ 6,900

Memory: Additional modules up to 32,768 words

4,096 word 900 nanosecond	\$ 15,600
8,192 word 900 nanosecond	\$ 23,500
Additional Memory Bus Control	\$ 2,600
Additional Bus Connection per memory module	\$ 650

Paper Tape Units:

300 cps Reader	\$ 2,400
60 cps Punch	\$ 2,800



COMPETITIVE COMPARISON

ADVANCE 6130 DATA ACQUISITION AND INDUSTRIAL COMPUTER SYSTEM

A	MODEL	ASI 6130	CCC DDP-116	CDC 1700	DEC PDP-8	IBM 1130	IBM 1800	SDS 92
B	Word Size	16	16	16	12	16	16	12
	Parity Check	Yes	Optional	Yes	Optional	No	Yes	Optional
	Protection Feature	Yes	No	Yes	No	No	Yes	No
C	Memory Size	4-32K	4-32K	4-32K	4-32K	4-32K	4-32K	4-32K
	Cycle Time (Microseconds)	0.6-0.9	1.7	1.1	1.5	3.6	2.0 or 4.0	1.75
D	Add Time	1.2-1.8	3.4	2.2	3.0	8-20.3	4.5	3.5
E	Index Registers	3H	1M	1H & 1M	8M	3M	3H	1H
F	Indirect Addressing	I	I	I	1	1	1	I
G	Relocation Register	Yes*	No	No	No	No	No	No
H	Multiple/Divide	H	H Optional	H	H Optional	H	H	H
I	Floating Point	S	S	S	S	S	S	S
J	Multiple Precision	H	S	S	S	H	S	S
K	Interrupt Response Time (microseconds)	9/14.4	23/38.3	20.2/29	48.5/71	No External	48.5/92.8	17.5/43.8
L	External Interrupts	128	256	16	64	None	384	256
M	Interrupt Selection	H	H	H	S	N/A	H	H
N	Interrupt Priority Levels	128	16	16	1	6 Internal	24	261
O	Interrupt Enable/Disable	I,G	I	I	A	I	I,G	I
P	Single Instruction Interrupt	Yes	No	Yes	No	No	No	Yes
Q	Compilers Available	F,R	F	R	F	F	F,R	F
R	Re-entrant Procedures	H	A	A	A	A	S	A
S	Macro Assembler	Yes	No	Yes	Yes	Yes	No	No
T	Buffered I/O Channels	6	8	2	7	None	9	1
U	Interlaced Multiplexer I/O	1-16	0	2-64	0	None	0	1-128
V	External State Sensing	Yes	Yes Optional	Yes	Yes	Yes	No	Yes
W	Parallel Word I/O Instruction	Yes	No	Yes	Yes	Yes	Yes	Yes
X	Logic Modules	Yes	Yes	No	Yes	No	No	Yes
Y	Peripherals	D,C,I,L	D,C,L	D,C,L	C,L	D **	D,L	D,C,L

COMPARISON CHART

EXPLANATORY KEY

- A. Manufacturers: ASI - ASI Computer Division-EMR; CCC - Computer Control Co.; CDC - Control Data Corp.; DEC - Digital Equipment Corp.; IBM - International Business Machines; SDS - Scientific Data Systems.
- B. Word Size: The normal length in bits for arithmetic operations is given. For byte-oriented machines a normal fixed point length is given.
- C. Memory Size: Minimum / Maximum - cycle time is usec
- D. Add Time: Fixed point addition from core memory to accumulator except Floating point only.
- E. Index Registers: Number allowed, Hardware or Memory implemented.
- F. Indirect Addressing: Maximum number of indirect levels addressable or Indefinite.
- G. Relocation Register: Either a fixed base added on all memory accesses or a memory paging scheme.
- H. Multiply/Divide: Hardware or Software.
- I. Floating Point Arithmetic: Hardware or Software.
- J. Multiple Precision Arithmetic: Hardware or Software.
- K. Interrupt Response Time (usec): First value is sum of longest non-interruptible instruction and interrupt execution times; second is first value plus time to save all hardware states of machine in memory. Indefinite indirect addressing not included.
- L. External Interrupts: Number of separate external interrupt triggering signals allowed.
- M. Interrupt Selection Scheme: Hardware if control transfers directly to program unique to interrupting trigger, else Software.
- N. Interrupt Priority Levels: Number of levels of hardware-controlled priority interrupt.
- O. Interrupt Enable/Disable: Individual enabling of each interrupt source; Group enabling of sets of interrupts; All interrupts enable/disable only.
- P. Single Instruction Interrupt: Execution of a single instruction with automatic program resumption.
- Q. Compilers Available: Algol, Fortran, Rreal-time Fortran (re-entrant procedures).
- R. Re-entrant Procedures: Hardware if machine instructions to save subrouting return links and temporary storage in pushdown list; Software if return links placed in index registers or other preserved hardware; Awkward if return links placed in fixed memory cells requiring special procedures to ensure re-entrancy.
- S. Buffered I/O Channels: Maximum number of I/O channels that operate in parallel with the central processing unit but capable of handling transmission to only one peripheral device at a time.
- T. Macro Assembler: Available or not.
- U. Interlaced Multiplexed I/O Channels: First value is maximum number of I/O channels each capable of concurrently transmitting to several peripheral devices; second value is the maximum number of devices (subchannels) connectable to any such channel.
- V. External State Sensing: Maximum number of external states or devices whose binary value can be individually determined under program control.
- W. Parallel Work I/O Instruction: Capability for direct input/output of individual external data words under program control.
- X. Logic Modules: Compatible digital circuit cards offered as a commercial product (not as maintenance or replacement items).
- Y. Peripheral Equipments: Standard options: Disc or Drum mass memory units; Cathode ray displays; Incremental tape units; Links to other computers. All manufacturers offer conventional magnetic tape transports.